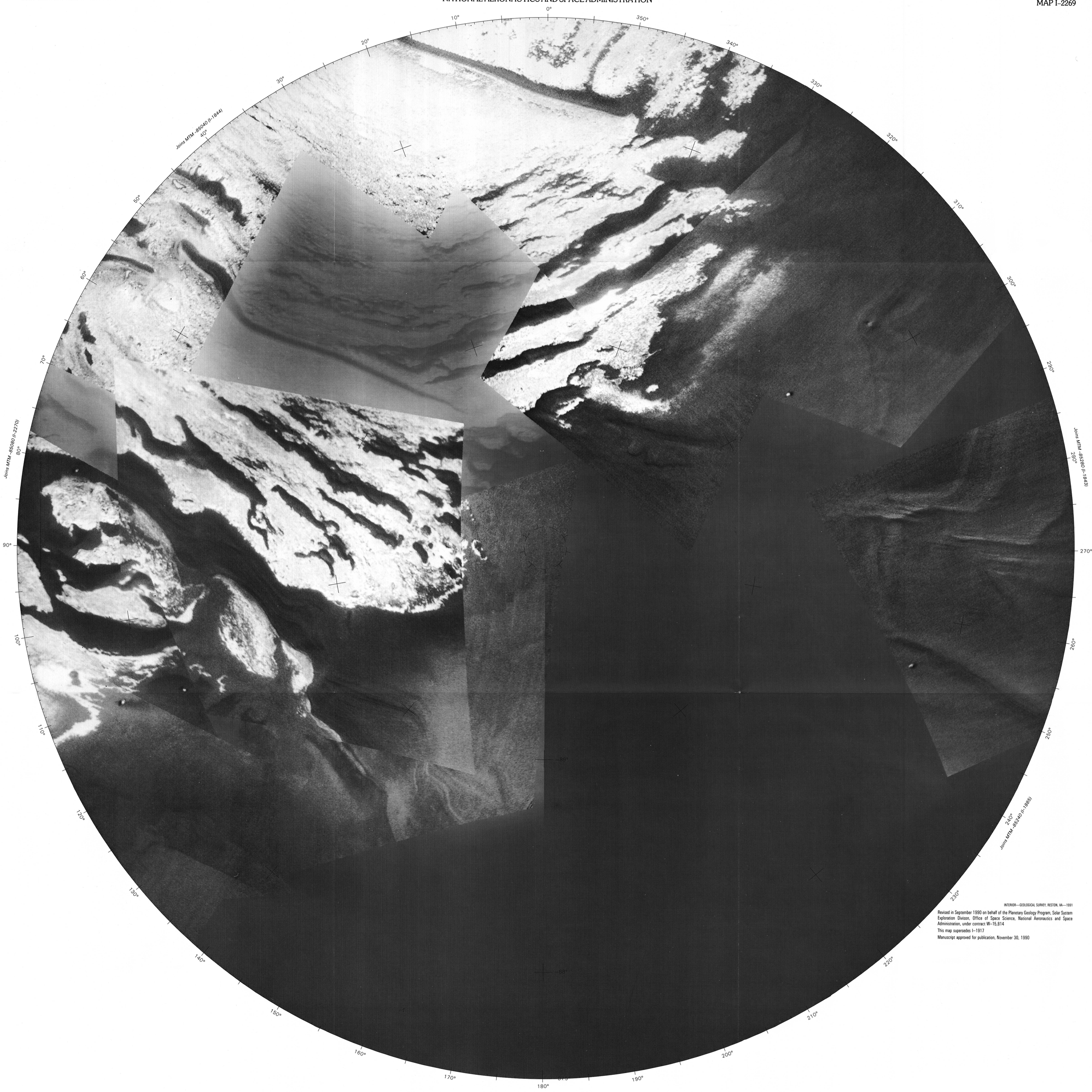
U.S. DEPARTMENT OF THE INTERIOR
U.S. GEOLOGICAL SURVEY

Prepared for the
NATIONAL AERONAUTICS AND SPACE ADMINISTRATION

ATLAS OF MARS
1:500,000 TOPOGRAPHIC SERIES
MTM –90000 (REVISED): PLANUM AUSTRALE REGION
M 500k –90/0 CM, 1991
MAP I–2269



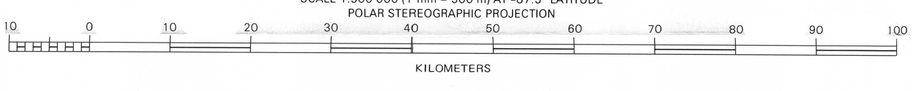
INTERIOR—GEOLOGICAL SURVEY, RESTON, VA—1991

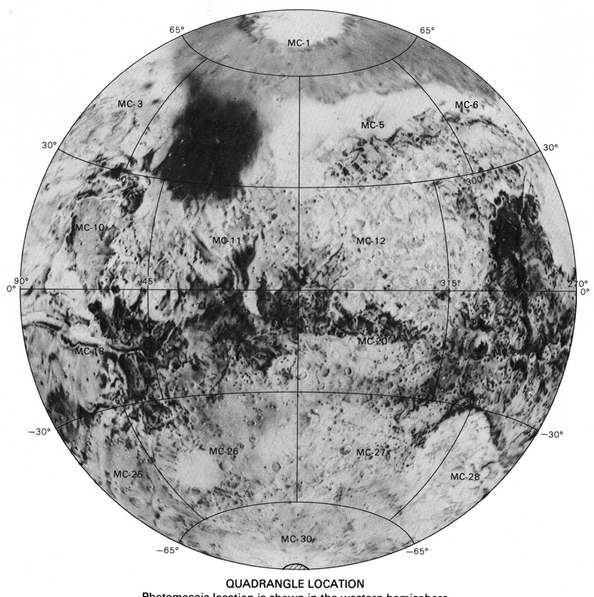
Revised in September 1990 on behalf of the Planetary Geology Program, Solar System Exploration Divison, Office of Space Science, National Aeronautics and Space Administration, under contract W–15,814

This map supersedes I–1917

Manuscript approved for publication, November 30, 1990

SCALE 1:503 000 (1 mm = 503 m) AT –90° LATITUDE
SCALE 1:500 000 (1 mm = 500 m) AT –87.5° LATITUDE
POLAR STEREOGRAPHIC PROJECTION





QUADRANGLE LOCATION
Photomosaic location is shown in the western hemisphere of Mars. The outline of 1:5,000,000-scale quadrangles is provided for reference.

NOTES ON BASE

This photomosaic covers part of an area of special scientific interest on Mars. It is published in a series designed to support topical studies, which is not expected to result in systematic coverage of the planet. The mosaic was compiled by digital methods described by Batson (1987) and Edwards (1987).

The distribution of Viking Orbiter images suitable for mapping at a scale of 1:500,000 is uneven, as are the quality and distribution of map controls. Mariner 9 "B" camera pictures that resolve surface features better than Viking Orbiter images of the same areas were specially processed for use in this mosaic. The mosaics are usually compiled in blocks of two or more adjacent quadrangles that are selected on the basis of scientific importance, not necessarily in areas of optimum coverage by high-resolution images or precise map controls. Image placement is based on a planetwide topographic control net that has a published standard error of 5 km (Wu and Schafer, 1984). A block of mosaics compiled in an area where controls have optimum distribution and precision is not likely to match adjacent blocks previously compiled in areas where controls are sparse or imprecise. Where discrepancies exist between adjacent mosaics, the more recent compilation likely to be more accurate.

This mosaic, in Polar Stereographic projection, is an extension of the Mars Transverse Mercator (MTM) series. The MTM designation has been retained to ensure convenient series identification. The scale of this projection is 1:503,000 at the pole and 1:500,000 at lat 87.5° S. The projection scale is based on an oblate spheroid (flattening of 1/192) with an equatorial radius of 3393.4 km and a polar radius of 3375.7 km.

Mariner 9 processing and control were done by Ken Herkenhoff of the Jet Propulsion Laboratory, California. Digital processing and mosaicking were done by Ella M. Lee.

NOMENCLATURE

All names shown on the reduced base mosaic are approved by the International Astronomical Union (IAU, 1977).

M 500k –90/0 CM: Abbreviation for Mars; 1:500,000 series; center of sheet lat 90° S., long 0°; controlled photomosaic (CM).

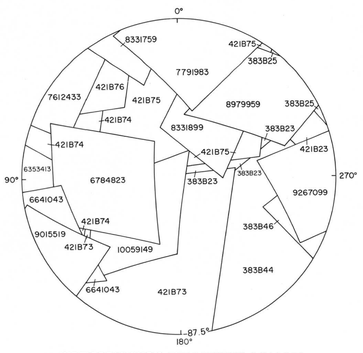
REFERENCES

Batson, R.M., 1987, Digital cartography of the planets: New methods, its status, and its future: Photogrammetric Engineering and Remote Sensing, v. 53, no. 9, p. 1211–1218.

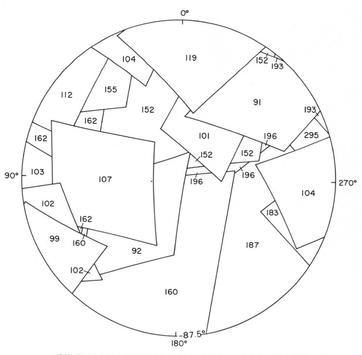
Edwards, Kathleen, 1987, Geometric processing of digital images of the planets: Photogrammetric Engineering and Remote Sensing, v. 53, no. 9, p. 1219–1222.

International Astronomical Union, 1977, Working Group for Planetary System Nomenclature, *in* Proceedings of the 16th General Assembly, Grenoble, 1976: Transactions of the International Astronomical Union, v. 16B, p. 321–325, 331–336, 355–362.

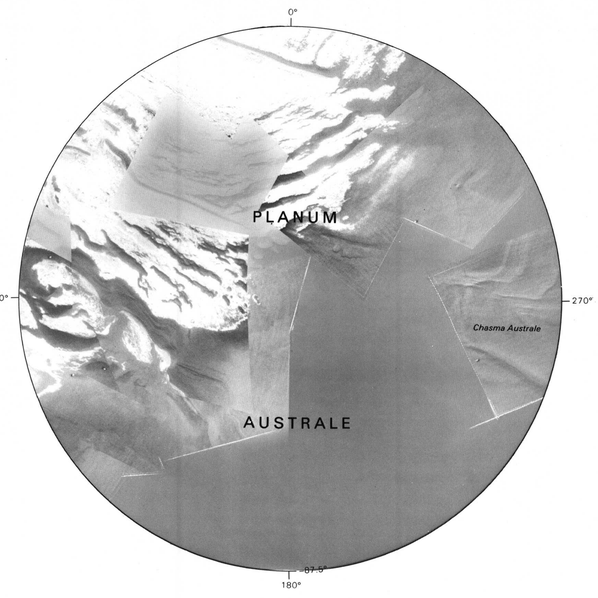
Wu, S.S.C., and Schafer, F.J., 1984, Mars control network: American Society of Photogrammetry, *in* Technical papers of the 50th annual meeting of the American Society of Photogrammetry, v. 2, Washington, D.C., March 11–16, 1984, p. 456–463.



INDEX OF VIKING 2 AND MARINER 9 IMAGES
The mosaic was made with the Mariner 9 and Viking 2 pictures outlined above. Mariner 9 "B" camera images are identified by a seven-digit Data Automation Subsystem (DAS) number. Although the first six digits uniquely identify each frame, the seventh digit may differ (usually by 5) among various versions of the same image, depending on which tracking station recorded the image. Copies of various enhancements of these pictures are available from National Space Science Data Center, Code 601, Goddard Space Flight Center, Greenbelt, MD 20771.



INDEX MAP OF NOMINAL IMAGE RESOLUTION
(METERS PER PIXEL)



LOCATION OF SELECTED FEATURES
Contrast in the reduced base mosaic was purposely suppressed to emphasize the names.

NOTE TO USERS
Users noting errors or omissions are urged to indicate them on the map and to forward it to U.S. Geological Survey, Building 4, Room 454, 2255 North Gemini Drive, Flagstaff, Arizona 86001. A replacement copy will be returned.

CONTROLLED PHOTOMOSAIC OF THE SOUTH POLAR AREA (MTM –90000: REVISED), PLANUM AUSTRALE REGION OF MARS

1991

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